

Patent claims

1. An electric motor and/or transmission having an input drive shaft (3) and an output drive shaft (4), and having a housing (1) on which a centering flange (5) and/or an attachment flange (6) are/is provided, characterized

in that the housing (1) has at least one associated strain sensor (9).

2. The electric motor and/or transmission having an input drive shaft (3) and an output drive shaft (4), and having a housing (1) on which a centering flange (5) and/or an attachment flange (6) are/is provided, characterized in that the housing (1) has at least one associated indicating electronics device (11), in particular an indicating display (12).

3. The electric motor and/or transmission having an input drive shaft (3) and an output drive shaft (4), and having a housing (1) on which a centering flange (5) and/or an attachment flange (6) are/is provided, characterized in that the centering flange (5) has at least one radially circumferential groove (16) in which at least one damping element (14) is inserted.

4. The electric motor and/or transmission as claimed in at least one of claims 1 to 3, characterized in that the at least one strain sensor (9) is arranged

close to the attachment flange (5).

5. The electric motor and/or transmission as claimed in at least one of claims 1 to 4, characterized in that the at least one strain sensor (9) is provided on the unchanged or virtually unchanged housing (1).

6. The electric motor and/or transmission as claimed in at least one of claims 1 to 5, characterized in that the at least one strain sensor (9) close to the cylindrical housing parts is provided close to the attachment flange (6).

7. The electric motor and/or transmission as claimed in at least one of claims 1 to 6, characterized in that the at least one strain sensor (9) is arranged in the cylindrical area of the attachment flange (6).

8. The electric motor and/or transmission as claimed in claim 7, characterized in that the at least one strain sensor (9) is arranged close to the attachment screw holes (8) in the attachment flange (6).

9. The electric motor and/or transmission as claimed in at least one of claims 1 to 8, characterized in that a plurality of strain sensors (9) are arranged radially distributed around the housing (1), in particular around the attachment flange (6) in the area of the cylindrical housing (1), opposite the centering flange (5).

10. The electric motor and/or transmission as claimed in at least one of claims 1 to 9, characterized in that the at least one strain sensor (9) is arranged approximately centrally between two adjacent corner areas (7) of two arrangements, which are located alongside one another, of attachment screw holes (8) underneath the centering flange (5), on the cylindrical housing (1), close to it.

11. The electric motor and/or transmission as claimed in at least one of claims 1 to 10, characterized in that an attachment flange (6) is at least partially or completely coaxially separated via a radial incision (18) from a casing surface (20) of the housing (1).

12. The electric motor and/or transmission as claimed in claim 11, characterized in that the attachment flange (6) has at least one constriction (19) in the area of the incision (18), in particular an at least partially or completely radially circumferential constriction (19) in order to hold at least one strain sensor (9).

13. The electric motor and/or transmission as claimed in at least one of claims 11 or 12, characterized in that the attachment flange (6) is formed such that it at least partially surrounds the housing (1) itself or is associated with it, with at

least one incision (18) or gap being provided between the casing surface (20) and the attachment flange (6), in order to form at least one constriction (19).

14. The electric motor and/or transmission as claimed in at least one of claims 1 to 13, characterized in that the at least one strain sensor (9) is in the form of a strain gauge and is connected to an evaluation unit (10) and/or to an indicating electronics device (11).

15. The electric motor and/or transmission as claimed in at least one of claims 1 to 14, characterized in that a force and/or a torque, in particular radial forces, can be determined by the at least one strain sensor (9) and, if a selectable, predetermined limit value is exceeded, an alarm signal or a switch-off signal can be generated, and can be displayed on the indicating electronics device (11).

16. The electric motor and/or transmission as claimed in claim 15, characterized in that the signals which are determined in the at least one strain sensor (9) are recorded over time in order to determine the state, in particular the operating state of the transmission, are stored in the evaluation unit (10) and, if required, are stored, can be indicated or can be called up in the indicating electronics device (11).

17. The electric motor and/or transmission as claimed in at least one of claims 2 to 16, characterized in that the indicating electronics device (11) is connected to at least one sensor (13), strain sensor (9), force sensor, temperature sensor, incremental sensor or the like, which are associated with the transmission or the transmission elements.

18. The electric motor and/or transmission as claimed in at least one of claims 2 to 17, characterized in that the at least one indicating electronics device (11) is associated with a base flange (2) on the housing (1).

19. The electric motor and/or transmission as claimed in at least one of claims 2 to 18, characterized in that transmission-specific and permissible state parameters and limit values, such as force, temperature, life, number of revolutions, can be indicated visually and can be read on the indicating electronics device (11), in particular on the indicating display (12).

20. The electric motor and/or transmission as claimed in at least one of claims 2 to 19, characterized in that the state data which is generated in the indicating electronics device (11), in particular in the indicating display (12), can additionally be transmitted, if required without the

use of wires, to an external evaluation device (10).

21. The electric motor and/or transmission as claimed in at least one of claims 2 to 20, characterized in that the transmission-specific state data, such as force, temperature, life, number of revolutions, etc., can be called up and read via the manually operable indicating display (12).

22. The electric motor and/or transmission as claimed in at least one of claims 3 to 21, characterized in that the damping element (14) which is inserted into the radially circumferential groove is in the form of an elastically deformable rubber element.

23. The electric motor and/or transmission as claimed in at least one of claims 3 to 22, characterized in that the damping element (14) is in the form of an O-ring (17).

24. The electric motor and/or transmission as claimed in at least one of claims 3 to 23, characterized in that a plurality of circumferential grooves (16), which are spaced apart from one another and are parallel to one another, are provided in the centering flange (5) for insertion of a plurality of damping elements (14).

25. The electric motor and/or transmission as claimed in at least one of claims 3 to 24, characterized in that the at least one damping element

- (14) overhangs a casing surface of the centering flange
- (5) on the outside.